DOCUMENT RESUME

ED 403 434 CE 073 301

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TITLE Defining Instructional Quality by Employing the Total Quality Management (TQM) Method: A Research Project.
PUB DATE 7 Dec 96
NOTE 26p.; Paper presented at the American Vocational Association Convention (Cincinnati, OH, December 7, 1996).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Comparative Analysis; Delphi Technique; Educational Attainment; *Educational Quality; *Evaluation Methods; Feasibility Studies; *Instructional Effectiveness; Postsecondary Education; Q Methodology; Questionnaires; *Student Attitudes; *Total Quality Management; *Vocational Education

ABSTRACT

The feasibility of using W. E. Deming's total quality management (TQM) method to define instructional quality was examined by surveying three groups of students attending Idaho State University's College of Education and School of Applied Technology: 31 students seeking cosmetology certification; 75 undergraduates pursuing degrees in corporate training and vocational teacher education; and 25 students seeking master's degrees in occupational training management. Data were collected through a modified Delphi technique and the Q-Sort method. Regardless of their academic level, all students appeared to consider interpersonal skills more important than teaching skills. Among all three groups, interpersonal skills were considered a high priority in teaching environments. The greatest differences in ranking of the top 10 teaching qualities and the top 10 interpersonal qualities occurred between the certification-seeking students and the master's degree students. The following rankings were said to be especially surprising: humor, 29.0; returns assignments in a timely manner, 32.0; has a professional appearance, 32.33; and starts/ends classes on time, 33.0. The following were among the study recommendations: teaching methodology classes should pay more attention to interpersonal skills; the study should be replicated in other similar institutions; and future studies should include students seeking two-year degrees. (Three sample questionnaires are included.) (MN)

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ED 403 434

Defining Instructional Quality by Employing the Total Quality Management (TQM) Method: A Research Project

Presentation to the
Technical Education Division
of the

AMERICAN VOCATIONAL ASSOCIATION
Annual Conference

by

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

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INTRODUCTION

The 1960s witnessed a change in American business and industry. As American businesses slipped behind Japan as a world leader in product quality, they sent representatives there to observe first hand the secret of Japan's remarkable success. They found quality circles, where teams of workers met in small groups to solve production related problems, and to increase the quality of products. Quality received a "new look" by American industry; this quality movement eventually became Total Quality Management (TQM). According to TQM, quality is defined by the customer.

Eventually, the TQM movement began to be adopted by education, where it focused on attempting to maximize the individual student's potential. Its application to education is accomplished by translating W. Edwards Deming's 14 principles of quality management into terms relevant to that environment. Following such principles education too needs to focus on its customers, one such being the student.

It is these researchers' belief that TQM has special relevance to the study of instructional quality in postsecondary vocational education, higher education, and corporate training. This research examined one aspect of TQM in education, with the student (the most direct customer) defining quality of instruction in the identified programs at Idaho State University.

METHODOLOGY

Data were gathered in classes taught during the Spring semester 1996 in the Idaho State University College of Education and School of Applied Technology. Program areas participating in the study were Cosmetology Certification students, Corporate Training and Vocational Teacher Education Undergraduate students, and Occupational Training Management Graduate students.

Degree seeking participants in the study were selected from those classes being offered through the Career, Technical, and Adult Education program area. Certification seeking participants were selected by the

cosmetology department chairperson's interest in learning more about the students enrolled in the program.

Data were collected using a modified Delphi technique and the Q-Sort method. Following the Delphi technique students were first asked on a questionnaire to identify instructional characteristics they believed represented instructional quality. The original 173 characteristics generated were evaluated for similarities and consolidated into 36 distinctly separate characteristics. Due to a transcription error only 35 characteristics are reported in this study.

The second instrument asked students to assign each characteristic a value using a Likert scale. Inherent in the methodology is the need to identify participants in order to return their own response sheets to them for further review. The third, and final instrument, allowed students to compare their previous response on each characteristic with the responses of other participants. They were then asked if they wished to change their response or allow it to remain. This instrument constituted the final data gathering that employed the Delphi technique.

The Q-Sort method was employed in a research methods graduate class as part of the class curriculum. This method is used each semester in the class. Q-Sort utilizes a forced evaluation, is based on a normal curve, and results in a rank order of preference. As Q-Sort ranks information, the data were recorded as rank orders only. However, as this methodology also quantifies data, it was determined that its inclusion into the research was appropriate.

SAMPLE QUESTIONNAIRE

INSTRUCTIONAL QUALITY ASSESSMENT SURVEY

This questionnaire is being administered to determine characteristics of instructional quality, as assessed by the student, in classroom content delivery. A modified Delphi method of assessment is being employed in determining those characteristics. During the first phase of assessment, each participating student will be asked to identify three (3) instructional characteristics believed to represent quality delivery in the classroom.

After tabulating the results of the initial inquiry an overall list of characteristics will then be distributed. The lists will then be evaluated and distributed with the weighted means identified for each characteristic. Each participating student will then have the opportunity to compare his or her response to the overall mean.

Finally, the weighted scale will be marked by participating students and returned. This will then provide the top quality characteristics as identified by the participants.

The following may serve as examples of instructional quality characteristics, please add your three and return to class next week. (e.g. humor, use of instructional aids, variety in teaching methods, understanding of content, etc.)

1. _____

_____

2. _____

_____

3. _____

_____

SAMPLE QUESTIONNAIRE

QUESTIONNAIRE #2

Instructional Quality Assessment Survey.

This questionnaire utilizes a Likert scale, and asks you to rate the compiled responses on a scale from 1-5 with 1 being the **least** needed and 5 being the **most** needed.

It is essential that you include an identifier on this questionnaire so that you will know it is yours. Please place a number, mark, or other means of identification, other than your name, initials, or student number, in the upper right hand corner of this questionnaire. Identification is needed as it will be returned to you for comparison along with the final form.

Quality Characteristic		Least Important				Most
1.	Characteristic	1	2	3	4	5
2.	Characteristic	1	2	3	4	5
3.	Characteristic	1	2	3	4	5
4.	Characteristic	1	2	3	4	5
?.	Characteristic	1	2	3	4	5

SAMPLE QUESTIONNAIRE

QUESTIONNAIRE #3

Instructional Quality Assessment Survey.

In this last questionnaire is included the Mean (X) score for each category. For convenience the categories are listed in descending order. Also included is your individual response for each category.

On this last questionnaire you should again respond to each characteristic identified, this will give you a chance to change your last response or leave it the same. Whatever you decide, please indicate your response on the Likert scale.

We would like to thank each participant for their individual contribution to this survey. As soon as the data are tabulated the results will be posted in your classroom.

Quality Characteristic		$\bar{X}$	Previous response	Least Important				Most
1.	Characteristic	?.?	(?)	1	2	3	4	5
2.	Characteristic	?.?	(?)	1	2	3	4	5
3.	Characteristic	?.?	(?)	1	2	3	4	5
4.	Characteristic	?.?	(?)	1	2	3	4	5
?.	Characteristic	?.?	(?)	1	2	3	4	5

RAW DATA FROM COLLEGE OF EDUCATION SURVEY

Four year degree seeking/graduate students N=75

Group #1

	CHARACTERISTIC	MEAN
1.	Is prepared	4.67
2.	Displays a positive attitude	4.60
3.	Is open to student comments, questions, and opinions	4.56
4.	Has an understanding and mastery of subject matter content	4.47
5.	Is an enthusiastic instructor	4.47
6.	Applies theories to real life	4.44
7.	Displays clarity with class objectives and presentations	4.43
8.	Indicates fairness	4.40
9.	Listens to and interacts with students	4.40
10.	Encourages class participation	4.33
11.	Relates to students and is concerned	4.32
12.	Teaches appropriate content	4.29
13.	Uses hands-on personal examples, anecdotes, and anecdotes	4.29
14.	Uses a variety of teaching methods	4.28
15.	Gives feedback	4.24
16.	Uses resources other than text	4.24
17.	Transfers knowledge of subject to students for comprehension	4.23
18.	Tests conceptual knowledge instead of rote memory	4.23
19.	Has control of class	4.21
20.	Shows patience	4.19
21.	Is an interesting instructor	4.17
22.	Presentations are logical	4.17
23.	Has a student oriented instructional style	4.11
24.	Uses visual aids	4.11
25.	Is knowledgeable about learning styles	4.09
26.	Has goals for each class session	4.09
27.	Facilitates a relaxed classroom atmosphere	4.04
28.	Uses current technology and equipment	4.03
29.	Uses humor	3.96
30.	Teaches at a good pace	3.93
31.	Displays an understanding of teaching styles	3.87
32.	Starts and ends classes on time	3.76
33.	Provides spontaneous instruction	3.76
34.	Has a professional appearance	3.73
35.	Returns assignments in a timely manner	3.72

RAW DATA FROM SCHOOL OF APPLIED TECHNOLOGY SURVEY

Certificate Seeking Students N=31

Group #2

	CHARACTERISTICS	MEAN
1.	Displays a positive attitude	4.90
2.	Is an enthusiastic instructor	4.90
3.	Has an understanding & mastery of subject matter content	4.87
4.	Indicates fairness	4.87
5.	Is open to student comments, questions & opinions	4.84
6.	Has control of class	4.81
7.	Shows patience	4.81
8.	Listens to & interacts with students	4.77
9.	Has a student oriented instructional style	4.77
10.	Tests on conceptual knowledge instead of rote memory	4.74
11.	Presentations are logical	4.74
12.	Relates to students and is concerned	4.74
13.	Teaches at a good pace	4.71
14.	Transfers knowledge of subject to students for comprehension	4.71
15.	Is prepared	4.71
16.	Uses resources other than text	4.71
17.	Uses visual aids	4.68
18.	Gives feedback	4.68
19.	Teaches appropriate content	4.68
20.	Uses current technology & equipment	4.65
21.	Is knowledgeable about learning styles	4.65
22.	Is an interesting instructor	4.58
23.	Displays an understanding of teaching styles	4.55
24.	Applies theories to real life	4.55
25.	Uses hands-on personal examples, anecdotes, & questions	4.52
26.	Has goals for each class session	4.52
27.	Displays clarity with class objectives & presentations	4.48
28.	Has a professional appearance	4.42
29.	Uses a variety of teaching methods	4.39
30.	Returns assignments in a timely manner	4.39
31.	Encourages class participation	4.29
32.	Provides spontaneous instruction	4.19
33.	Starts and ends classes on time	4.16
34.	Facilitates a relaxed classroom atmosphere	4.06
35.	Uses humor	4.03

Q-SORT RAW DATA FROM C.O.E. SURVEY

Graduate students N=25

Group #3

CHARACTERISTICS **In Rank order**

1. Is prepared
2. Has an understanding and mastery of subject matter content
3. Displays a positive attitude
4. Listens to and interacts with students
5. Encourages class participation
6. Has goals for each class session
7. Applies theories to real life
8. Uses a variety of teaching methods
9. Is an enthusiastic instructor
10. Is open to student comments, questions, and opinions
11. Displays clarity with class objectives and presentations
12. Has control of class
13. Uses humor
14. Presentations are logical
15. Gives feedback
16. Relates to students and is concerned
17. Uses current technology and equipment
18. Transfers knowledge of subject to students for comprehension
19. Teaches appropriate content
20. Presentations are logical
21. Tests conceptual knowledge instead of rote memory
22. Uses hands-on personal examples, anecdotes, and questions
23. Is knowledgeable about learning styles
24. Uses current technology and equipment
25. Has a student oriented instructional style
26. Uses visual aids
27. Uses resources other than textbook
28. Shows patience
39. Provides spontaneous instruction
30. Indicates fairness
31. Returns assignments in a timely manner
32. Displays an understanding of teaching styles
33. Teaches at a good pace
34. Starts and ends classes on time
35. Has a professional appearance

Instructional Quality Research Data

Teaching

Statement	Rank #1	#2	#3*
Is prepared	01	15	01
Has an understanding & mastery of subject matter	04	03	02
Applies theories to real life	06	24	07
Displays clarity with class objectives & presentations	07	27	11
Encourages class participation	10	31	05
Teaches appropriate content	12	19	19
Uses hands-on personal examples, anecdotes, and questions	13	25	22
Uses a variety of teaching methods	14	29	08
Gives feedback	15	18	15
Uses resources other than textbook	16	16	27
Transfers knowledge of subject to students for comprehension	17	14	18
Tests conceptual knowledge instead of rote memory	18	10	21
Has control of class	19	06	12
Presentations are logical	22	11	14
Has a student-oriented instructional style	23	09	25
Uses visual aids	24	17	26
Is knowledgeable about learning styles	25	21	23
Has goals for each class session	26	26	06
Uses current technology and equipment	28	20	17
Teaches at a good pace	30	13	33
Displays an understanding of teaching styles	31	23	32
Starts and ends classes on time	32	33	34
Provides spontaneous instruction	33	32	29
Returns assignments in a timely manner	35	30	31

* #1 = ISU College of Education students (BS & MS) N = 75
  #2 = ISU School of Applied Technology students (SAT) N = 31
  #3 = ISU College of Education masters students in OTM (MS) N = 25

Instructional Quality Research Data

Interpersonal

Statement	Rank # 1	# 2	# 3*
Displays a positive attitude	02	01	03
Is open to student comments, questions and opinion	03	05	10
Is an enthusiastic instructor	05	02	09
Indicates fairness	08	04	30
Listens to and interacts with students	09	08	04
Relates to students and is concerned	11	12	16
Shows patience	20	07	28
Is an interesting intructor	21	22	20
Facilitates a relaxed classroom atmosphere	27	34	24
Uses humor	29	35	13
Has a professional appearance	34	28	35

* #1 = ISU College of Education students (BS & MS) N = 75
#2 = ISU School of Applied Technology students (SAT) N = 31
#3 = ISU College of Education masters students in OTM (MS) N = 25

Top and Bottom Ten Choices

Top Ten	Grp #1	Grp #2	Grp #3
Teaching	21%	17%	25%
Interpersonal	46%	55%	36%

Bottom Ten	Grp #1	Grp #2	Grp #3
Teaching	29%	29%	29%
Interpersonal	27%	27%	27%

N = 131

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Three Group Agreement Between Characteristics in Top Half (1-17)

Category	Percentage
Teaching	8%
Interpersonal	46%

N = 131

General Observations

- Interpersonal skills appear more important to students in this survey than teaching skills regardless of academic level
- Consensus among groups indicated overwhelmingly that interpersonal skills were a high priority in a teaching environment

General Observations

- The greatest difference in ranking of the top ten teaching qualities was between the Certification seeking students and the Masters students
- The greatest difference in ranking of the top ten interpersonal qualities was between the Certification seeking students and the Masters students

Some Surprises in Mean Ranking

- Humor 29.0
- Returns assignments in a timely manner 32.0
- Has a professional appearance 32.33
- Starts and ends classes on time 33.0

Recommendations

- More consideration be given to interpersonal skills in Teaching Methodology classes
- Replicate the study in other similar institutions
- Compare first year college students with fourth year

Recommendations

- Share result with teachers and administrators
- Include two year degree seeking students in a future study